

DOCKET NO: 282711US8X

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
THOMAS KEMP, ET AL. : EXAMINER: GODBOLD, DOUGLAS  
SERIAL NO: 10/731,929 :  
FILED: DECEMBER 10, 2003 : GROUP ART UNIT: 2626  
FOR: METHOD FOR PROCESSING :  
SPEECH USING ABSOLUTE LOUDNESS

REPLY BRIEF

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

This is a Reply to the Examiner's Answer dated November 6, 2009.

I. STATUS OF THE CLAIMS

Claims 1-2, 4-9, and 12-15 are pending in this application. Claims 1-2, 4-9, and 12-15 were rejected by the final Office Action of October 22, 2008. Claims 1-2, 4-9, and 12-15 are appealed.

## II. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether Claims 1-2, 4-9, and 12-15 are unpatentable under 35 U.S.C. § 103(a) as obvious over Gable et al. (U.S. Patent Application Publication No. 2005/0060153, hereinafter "Gable") in view of Brandstein et al. (Publication of the Journal of the Acoustical Society of America (JASA), "microphone-array localization error estimation with application to sensor placement," 1996, Vol. 99, No. 6, pp. 3807-3816, hereinafter "Brandstein").

### III. ARGUMENT

The Examiner's Answer clarifies certain aspects of the final rejection. Nevertheless, Appellants still believe that the final rejections are improper for the reasons provided in the Appeal Brief filed on August 17, 2009, and for the following additional reasons, which address points raised in the Examiner's Answer.

Appellants submit that the record clearly shows Gable and Brandstein fail to disclose or suggest determining parameters describing an absolute loudness of said speech input, the absolute loudness being a loudness of a speech at a location of a source of the speech. Thus, the record clearly shows that all of the claimed elements are not met by the applied references, either individually or in combination, and the art does not suggest the missing elements.

**A. The applied references, taken in any proper combination, do not teach all the features of Appellants' independent Claim 13.**

More specifically, Gable and Brandstein fail to disclose or suggest "determining parameters describing an absolute loudness of said speech input, the absolute loudness being a loudness of a speech at a location of a source of the speech," as recited in independent Claim 13.

1. The first rationale for obviousness in the Examiner's Answer.

With regard to the statements on page 17 of the Examiner's Answer as to Brandstein, Appellants resubmit that, although the mathematical model for the source of Brandstein explains at page 21, lines 10-14, that a source amplitude can depend on radiation angle and distance, Brandstein never actually calculates a loudness of a speech that generated by the speech signal at a location of a source of the speech, as required in Appellants' Claim 13.

Indeed, the Office dismisses the above-noted claimed feature on the unsubstantiated grounds that since Brandstein describes at page 4, line 4, to page 5, line 3, that unbiased estimates of time-difference-of-arrival (TDOA) of acoustic signals are calculated using propagation speeds and a maximum-likelihood estimation algorithm "one can calculate the position of a sound source, and thus, the distance from the source to the microphone arrays."

However, there is no technical basis for the Offices' above-noted assertion regarding calculating the distance from the source to the microphone arrays in view of the Brandstein reference.

Firstly, the Court of Appeals for the Federal Circuit has stated that it is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record, as the principle evidence upon which a rejection is based.<sup>1</sup> As the court held in In re Zurko, an assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidentiary support.<sup>2</sup>

Secondly, assuming *arguendo* art could be found which supports the Office's above-noted contention, Applicants traverses the 35 U.S.C. § 103(a) rejection based on Brandstein itself being silent regarding ***calculating an absolute loudness*** being a loudness of a speech that generated the speech signal at a location of a source of the speech, as required by Appellants' independent Claim 13. That is, further to the Office assertion, Brandstein never calculates a source amplitude, nor does Brandstein explain how the amplitude can be calculated by giving a simple model thereof. Therefore, the Office's above-noted assertion is unsubstantiated.

Thus, the combined teachings of Gable and Brandstein are in no way sufficient to lead one of ordinary skill in the art to arrive at the claimed invention, whereby an absolute

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<sup>1</sup> In re Zurko, 258 F.3d 1379, 1385 (2001); MPEP § 2144.03.

<sup>2</sup> In re Zurko, 258 F.3d 1379, 1385 (2001) at 1385, 59 USPQ2d at 1697.

loudness is calculated, the absolute loudness being a loudness of a speech that generated the speech signal at a location of a source of the speech, and the speech signal and speech parameters are evaluated using the normalized loudness or energy to identify a particular speaker. For example, as stated on page 3, lines 8-12, of Appellants' specification,

The use of absolute loudness as a parameter for emotion recognition and speaker identification is a key feature of the invention. The rate of successful emotion recognition and the rate of successful speaker identification improved significantly using absolute loudness as an additional input parameter for the respective recognition [sic] systems.

However, as noted above, Gable and Brandstein are both silent regarding *calculating an absolute loudness* being a loudness of a speech that generated the speech signal at a location of a source of the speech, as required by Appellants' independent Claim 13.

2. The second rationale for obviousness in the Examiner's Answer.

With regard to the statements on page 18 of the Examiner's Answer, Appellants are aware that the Examiner did not explicitly state the doctrine of inherency was being invoked in the rejection. However, the Examiner's treatment of unstated aspects of Brandstein as if they were expressly disclosed therein was understood by Appellants as an invocation of the inherency doctrine. That is, the previous assertion in the Office Action that "one can obviously estimate the amplitude at the source itself given the amplitude at the microphone array" is the Office's assertion alone and does not appear in Brandstein.

Therefore, further to Appellants understanding of the Office's assertion regarding estimating an amplitude at the source given the amplitude at the microphone array, Appellants submit, for the record, there is no inherent requirement that Brandstein calculate an absolute loudness being a loudness of a speech that generated the speech signal at a location of a source of the speech, as claimed; Brandstein could operate without calculating an absolute loudness. In view of the failure of the Office to provide sufficient information to

show inherency, and the lack of a requirement that Brandstein provides calculation of an absolute loudness, any inherency argument, and/or assertion that "one can obviously estimate the amplitude at the source itself given the amplitude at the microphone array" by reading the Brandstein reference, fails.

As noted in Appellants' Appeal Brief filed on August 17, 2009, Appellants do not challenge that Brandstein describes how the geometrical coordinates of a speech source location are estimated. However, Brandstein is silent regarding anything related to a step of determining parameters describing an absolute loudness, the absolute loudness being a loudness of the speech at a location of a source of the speech, as required by Appellants' Claim 13.

Therefore, even if the combination of Gable and Brandstein is assumed to be proper, the cited passages of the combination fails to disclose explicitly or inherently every element of Appellants' Claim 13.

**B. The combination of the applied references is not obvious.**

Regarding arguments as to the combination of the applied references not being obvious, Appellants rest on the Appeal Brief filed on August 17, 2009.

**C. Appellants' independent Claims 1, 9, 12, and 14-15 are also believed to be patentably distinct over the applied references.**

Regarding arguments as to Claims 1, 9, 12, and 14-15 being patentably distinct over the applied references, Appellants rest of the Appeal Brief filed on August 17, 2009 and the arguments presented above with regard to Claim 13.

Because independent Claims 1, 9, 12, and 14-15 include features that are analogous to the features argued in subparagraph i) of Appellant's Appeal Brief filed on August 17, 2009 with respect to the "absolute loudness," and Claims 1, 9, 12, and 14-15 have been rejected

based on an analogous obviousness rejection over the references Brandstein and Gable, Appellants respectfully submit that the arguments presented above towards patentability of independent Claim 13 are also applicable to the patentability of independent Claims 1, 9, 12, and 14-15.

**D. Appellants' dependent Claim 2 is believed to be patentably distinct over the applied references.**

Regarding arguments as to Claim 2 being patentably distinct over the applied references, Appellants rest on the Appeal Brief filed on August 17, 2009.

**E. Conclusion**

In summary, Appellants submit Gable and Brandstein fail to disclose or suggest determining parameters describing an absolute loudness of said speech input, the absolute loudness being a loudness of a speech at a location of a source of the speech. Thus, all of the claimed elements are not met by the applied references, either individually or in combination, and the references do not suggest the missing elements.

Accordingly, the Final Action fails to make a *prima facie* case of obviousness. It is respectfully requested that the rejection of Claims 1-2, 4-9, and 12-15 be reversed.

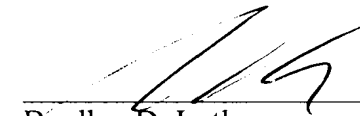
Respectfully submitted,

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